

# (12) UK Patent Application (19) GB (11) 2 297 609 (13) A

(43) Date of A Publication 07.08.1996

(21) Application No 9526310.9

(22) Date of Filing 22.12.1995

(30) Priority Data

(31) 9501391

(32) 25.01.1995

(33) GB

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(51) INT CL<sup>6</sup>

**F21V 21/04**

(52) UK CL (Edition O )

**F4R RPM R325**

(56) Documents Cited

**None**

(58) Field of Search

**UK CL (Edition ) F4R**

**INT CL<sup>6</sup> F21V 21/04**

**ON-LINE DATA-BASE:WPI**

## (54) VENTILATED COVERS FOR ELECTRIC FITTINGS

(57) A fire resistant cover for an electrical fitting to be recessed into a supporting structure comprises a fabric hood coated or impregnated with a liquid based intumescent material and includes a top supported by one or more upstanding side walls and a plurality of fabric pieces which extend inwardly from the lower margin of the or each side wall. The top of the cover includes a layer of intumescent material which is formed with a plurality of apertures through one of which electrical wiring to the fitting can pass. Complementary apertures are formed in the top of the cover, and means are provided for connecting the inwardly extending material pieces to adjoining surfaces of the structure in which the electrical fitting is recessed.

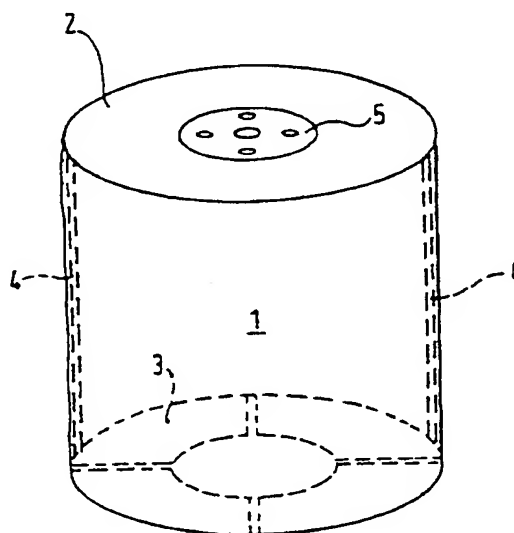


Fig.1.

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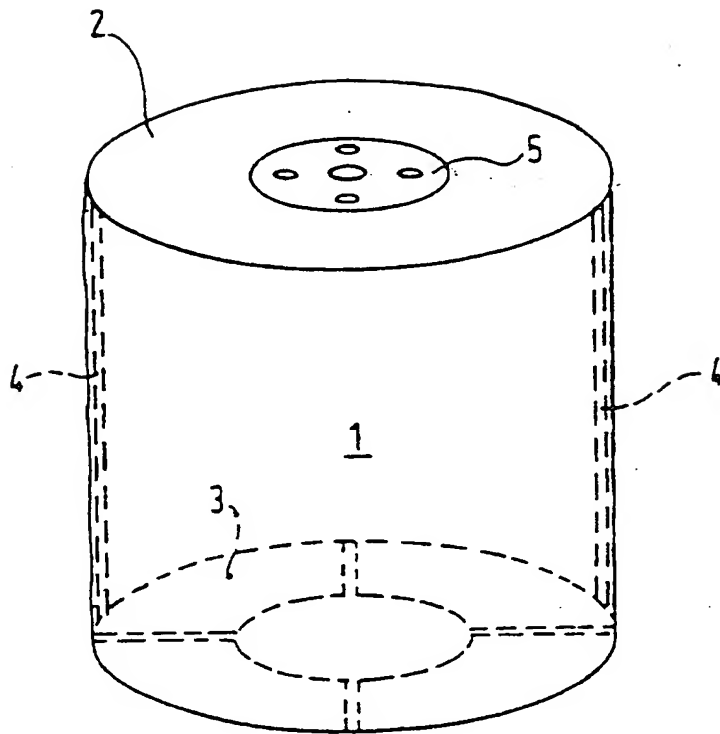


Fig.1.

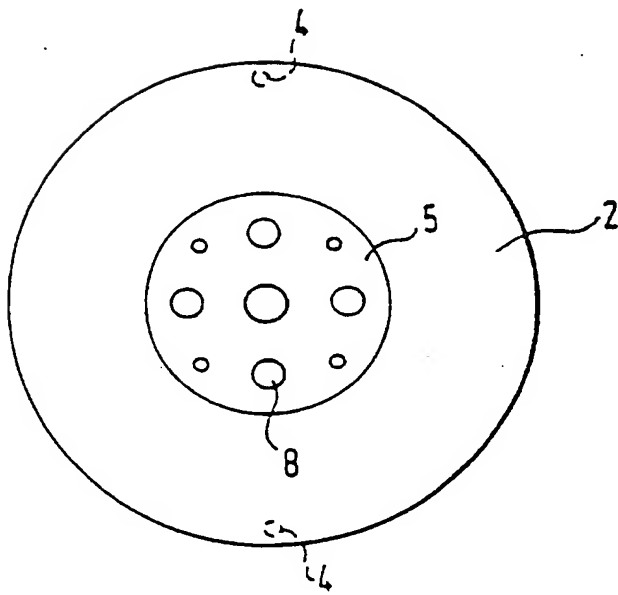


Fig.2.

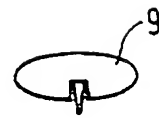


Fig.3.

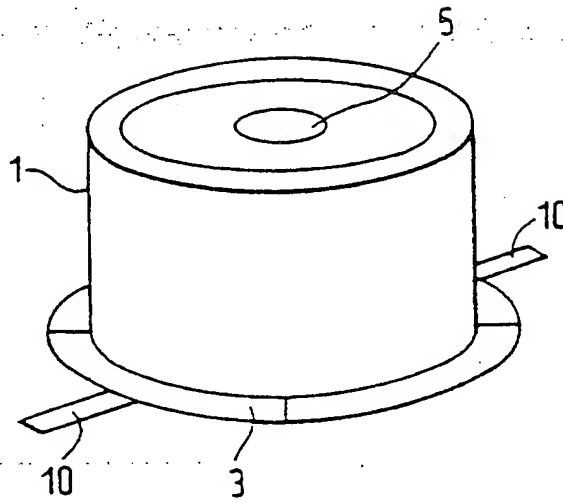


Fig.4.

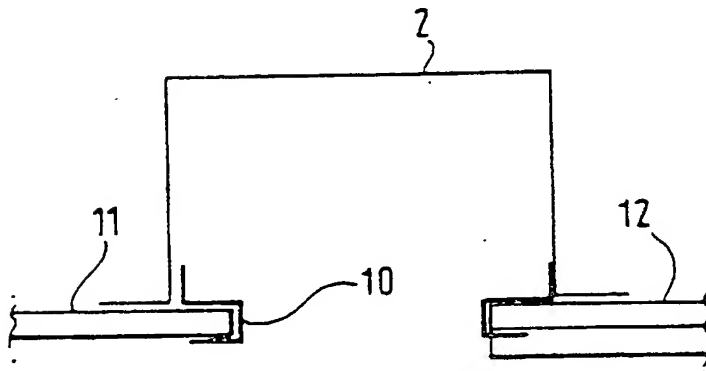


Fig.5.

VENTILATED COVERS FOR ELECTRICAL FITTINGS

This invention relates to ventilated covers for electrical fittings and more especially but not exclusively to a ventilated cover for a recessed electrical fitting, such as a downlighter set in a plasterboard ceiling, which, in the event of a fire, isolates the fitting from the structure in which it is recessed to maintain the fire resistance thereof.

Light fittings recessed into ceilings are well known. Such light fittings are known as downlighters. The heat generated by such light fittings can be considerable and represents a fire hazard. Also the recess in which such a fitting is mounted can itself provide a path for fire and smoke to a room or area located above that ceiling.

For cosmetic reasons, the aperture which is cut into a plasterboard ceiling to receive a downlighter is kept to a minimum. This restricts the size of ventilated cover

which can be employed, particularly where an existing downlighter is to be fire-proofed. Fire resistant covers for downlighters have previously been proposed but are generally too large to pass through a downlighter recess formed in an existing ceiling. Also, where this is possible, the covers rely upon fixings into the exposed surface of the plasterboard ceiling for securement purposes. This is aesthetically unappealing.

The present invention sets out to provide a ventilated cover for an electrical fitting which eliminates, or at least alleviates, many of the disadvantages present in existing fire resistant covers.

According to the present invention in one aspect, there is provided a fire resistant cover for an electrical fitting to be recessed into a supporting structure, the cover comprising a fabric hood coated or impregnated with a liquid based intumescent material and including a top supported by one or more upstanding side walls, a piece of intumescent material secured to the top of the cover and including a plurality of apertures through one of which electrical wiring can pass to an electrical fitting protected by the cover, and means for connecting the cover to adjoining surfaces of the structure in which the electrical fitting is recessed.

The fabric is preferably a fibrous cloth (e.g. a glass

fibre cloth) which is coated on one or each of its surfaces with liquid based intumescent material. The layer of intumescent material may comprise a suitably shaped piece of card which overlies a similarly shaped piece of intumescent cloth.

In another aspect, the invention provides a fire resistant cover for a downlighter recessed into a suspended ceiling, the cover being produced from a fibrous cloth material coated or impregnated with a liquid based intumescent material and including, in the cover upper surface, apertures around which is provided intumescent material in cloth or sheet form.

The invention will now be described by way of example only with reference to the accompanying diagrammatic drawings in which:-

Figure 1 is a perspective view of a cover in accordance with the invention;

Figure 2 is a plan view from above of the cover shown in Figure 1;

Figure 3 schematically illustrates a fixing for securing the cover to an adjoining ceiling structure; and

Figures 4 and 5 are perspective and sectional views of

an alternative cover in accordance with the invention.

The cover illustrated in Figures 1 and 2 is produced from a fibrous woven cloth (e.g. a glass fibre woven cloth) which has been coated on one or both of its sides with an intumescent paint or other intumescent medium. Preferably the cloth is impregnated with intumescent medium. The cover is generally circular in cross-section and comprises an upstanding side wall 1, a top 2 and floor pieces 3 which extend inwardly from the lower margin of the side wall. Wires 4 are sewn into the fabric of the side walls 1 to assist in holding the cover upright.

Typically the side wall 1 is produced from a length of glass fibre cloth which is sewn together at the strip ends, the top 2 then being secured to the upper margin of the side wall again by sewing. The floor pieces 3 are simply sewn to the lower margin of the side wall and are cut to enable the pieces 3 to lie flat on the adjoining surface of the suspended ceiling.

Typically the outside diameter of the cover is 289mm and the height of the cover is typically 145mm.

The top of the cover has secured to it a circular piece of card 5 which overlies and is bonded to a similarly shaped piece of intumescent material to define an intumescent gasket. This material typically comprises a

fibrous sheet impregnated with an intumescent material such as carbon granules. The gasket comprising the card and intumescent piece may simply be secured to the top of the cover by studs 6 or rivets. The gasket is formed with a central opening 2 through which can pass electrical cabling for the light fitting and four ventilation apertures 8. Similar openings are formed in the top of the cover. Typically the outside diameter of the gasket is 60mm.

As will be appreciated, the opening through which the cover must pass is relatively small. Because of the flexibility of the fabric material from which the cover and the gasket is formed, the hood can simply be squashed or folded to form a narrow tube which can readily pass through even the smallest ceiling opening for location about the margin of the ceiling opening. Before doing so, the electric wire which carries current to the electrical fitting is passed through the central opening 7 formed in the top 2 of the cover. Once sited, the floor pieces 3 of the cover are secured to the upper surface of the ceiling plasterboard using fixing pins 9 such as illustrated in Figure 3. Other simple forms of fixings may be employed. The fixing pins 9 have the advantage that they can be secured in place using finger pressure. Downlighting can then simply be connected to a source of electricity via the appropriate wire and the opening formed in the plasterboard ceiling closed with a lens cover in the normal way.

In use, the heat generated by downlighters recessed into ceilings can represent fire hazards. In the event of such a fire, the intumescent content of the cover and the card layer 5 quickly expands to isolate the fitting entirely from the surrounding structure thereby confining the fire and maintaining the fire resistance of the structure. Covers in accordance with the invention have been subjected to fire testing with no failure of the integrity criterion at the end of four hours testing. Insulation failure occurred after 46 minutes.

The cover illustrated in Figures 4 and 5 differs from that described above by the presence of fixing straps 10 secured to the lower inner surface of the cover which can be deformed as shown in Figure 5 to locate around a sheet of plasterboard 11 (left hand construction of Figure 5) or around and between superimposed sheets of plasterboard 12 (right hand construction of Figure 5). In this embodiment, the floor pieces 3 are folded away from the cover interior and lie in contact with the upper surface of the ceiling plasterboard on which the cover is positioned.

It will be appreciated that the foregoing is merely exemplary of fire resistant covers in accordance with the invention and that modifications can readily be made thereto without departing from the true scope of the invention as set out in the appended claims.

CLAIMS:

1. A fire resistant cover for an electrical fitting to be recessed into a supporting structure, the cover comprising a fabric hood coated or impregnated with a liquid based intumescent material and including a top supported by one or more upstanding side walls, a piece of intumescent material secured to the top of the cover and including a plurality of apertures through one of which electrical wiring can pass to an electrical fitting protected by the cover, and means for connecting the cover to adjoining surfaces of the structure in which the electrical fitting is recessed.
2. A cover as claimed in claim 1 further comprising a plurality of fabric pieces secured to the lower margin(s) of the side wall(s) of the cover.
3. A cover as claimed in claim 2 wherein the fabric pieces extend inwardly from the lower margin(s) of the side wall(s), the connecting means co-operating with the fabric pieces to secure the cover to the adjoining surfaces of the structure.
4. A cover as claimed in claim 1 or claim 2 wherein the connecting means comprises at least one fixing strap secured to the interior of the side wall(s) of the

hood and deformable around an edge of the supporting structure to connect the hood to the supporting structure.

5. A cover as claimed in any one of claims 1 to 4 wherein the top of the cover extends below the piece of intumescent material and includes apertures complementary to those of the piece of intumescent material.
6. A cover as claimed in any one of claims 1 to 5 wherein the piece of intumescent material comprises a sheet of card which overlies a similarly shaped layer of intumescent material.
7. A cover as claimed in claim 6 wherein the intumescent layer comprises a fibrous sheet impregnated with carbon granules.
8. A cover as claimed in any one of the preceding claims wherein the cover top includes a plurality of ventilation apertures.
9. A cover as claimed in any one of claims 1 to 8 wherein the fabric is a fibrous cloth.
10. A cover as claimed in claim 9 wherein the fabric is a glass fibre cloth coated on one or each of its

surfaces with liquid based intumescent material.

11. A cover as claimed in any one of the preceding claims wherein the layer of intumescent material comprises a suitably shaped piece of card which overlies a similarly shaped piece of intumescent cloth.
12. A fire resistant cover for a downlighter recessed into a suspended ceiling, the cover being produced from a fibrous cloth material coated or impregnated with a liquid based intumescent material and including, in the cover upper surface, apertures around which is provided intumescent material in cloth or sheet form.
13. A fire resistant cover substantially as herein described and as described with reference to Figures 1 to 3 or Figures 4 and 5 of the accompanying diagrammatic drawings.

**Patents Act 1977**  
**Examiner's report to the Comptroller under Section 17**  
**(The Search report)**

Application number  
 GB 9526310.9

**Relevant Technical Fields**

(i) UK Cl (Ed.O) F4R (RPM)

(ii) Int Cl (Ed.6) F21V 21/04

Search Examiner  
 S I AHMAD

Date of completion of Search  
 29 JANUARY 1996

**Databases (see below)**

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASE: CAS ONLINE

Documents considered relevant following a search in respect of Claims :-  
 1-13

**Categories of documents**

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|--|---|
| <p><b>X:</b> Document indicating lack of novelty or of inventive step.</p> <p><b>Y:</b> Document indicating lack of inventive step if combined with one or more other documents of the same category.</p> <p><b>A:</b> Document indicating technological background and/or state of the art.</p> | <p><b>P:</b> Document published on or after the declared priority date but before the filing date of the present application.</p> <p><b>E:</b> Patent document published on or after, but with priority date earlier than, the filing date of the present application.</p> <p><b>&amp;:</b> Member of the same patent family; corresponding document.</p> |
|--|---|

Category	Identity of document and relevant passages	Relevant to claim(s)
A	GB 2235710 (ENVIRONMENTAL SEALS)	1